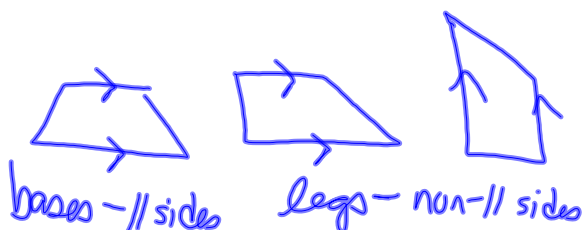


8-6 Trapezoids

trapezoid--quadrilateral with exactly one pair of parallel sides



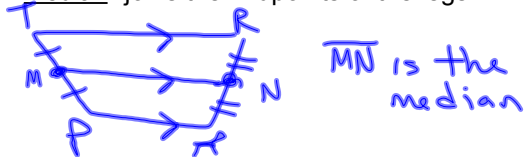
isosceles trapezoid-- congruent legs



Theorem 8.18--Both pairs of base angles of an isosceles trapezoid are congruent

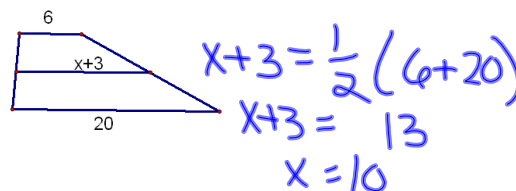
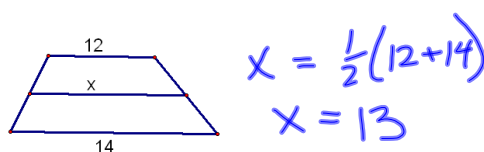
Theorem 8.19--The diagonals of an isosceles trapezoid are congruent

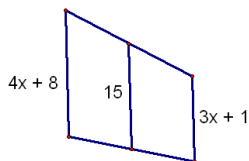
Median--joins the midpoints of the legs



Theorem 8.20--The median of a trapezoid is parallel to the bases and = $\frac{1}{2}$ the sum of the bases

$$MN = \frac{1}{2}(TR + AP)$$





$$15 = \frac{1}{2}(3x+1+4x+8)$$

$$2[15 = \frac{1}{2}(7x+9)]$$

$$30 = 7x+9$$

$$3 = x$$

Verify that ABCD is a trapezoid.

A(5, 1)
 B(-3, -1)
 C(-2, 3)
 D(2, 4)



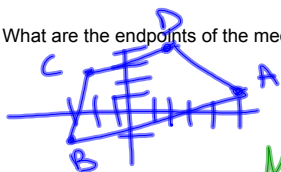
$$AB \ m = \frac{1}{4} \quad CD \ m = \frac{1}{4}$$

$$BC \ m = 4 \quad DA \ m = -1$$

ABCD is a trap. b/c there is only one pair of \parallel sides $\overline{AB} \parallel \overline{CD}$

What are the endpoints of the median?

A(5, 1)
 B(-3, -1)
 C(-2, 3)
 D(2, 4)



$$\overline{AB} \parallel \overline{CD}$$

Is it isosceles?

No

$$CB = \sqrt{(-3-2)^2 + (-1-3)^2}$$

$$1 + 16 = \sqrt{17}$$

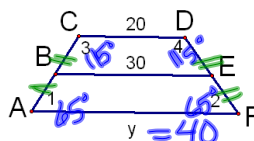
$$DA = \sqrt{(5-2)^2 + (1-4)^2}$$

$$9 + 9 = \sqrt{18}$$

Midpoints of \overline{CB} and \overline{DA}

$$M(-\frac{5}{2}, 1)$$

$$N(\frac{7}{2}, \frac{5}{2})$$



Isosceles trapezoid ACDF

$$m\angle 1 = 3x + 5$$

$$m\angle 3 = 6x - 5$$

$$30 = \frac{1}{2}(20+y)$$

$$60 = 20+y$$

$$40 = y$$

$$3x+5+6x-5=180$$

$$9x=180$$

$$x=20$$

HW
p442-443
9, 11, 13-19, 22, 25